

# Normal distribution calculator

Enter mean, standard deviation and cutoff points and this calculator will find the area under normal distribution curve. The calculator will generate a **step by step** explanation along with the graphic representation of the area you want to find.

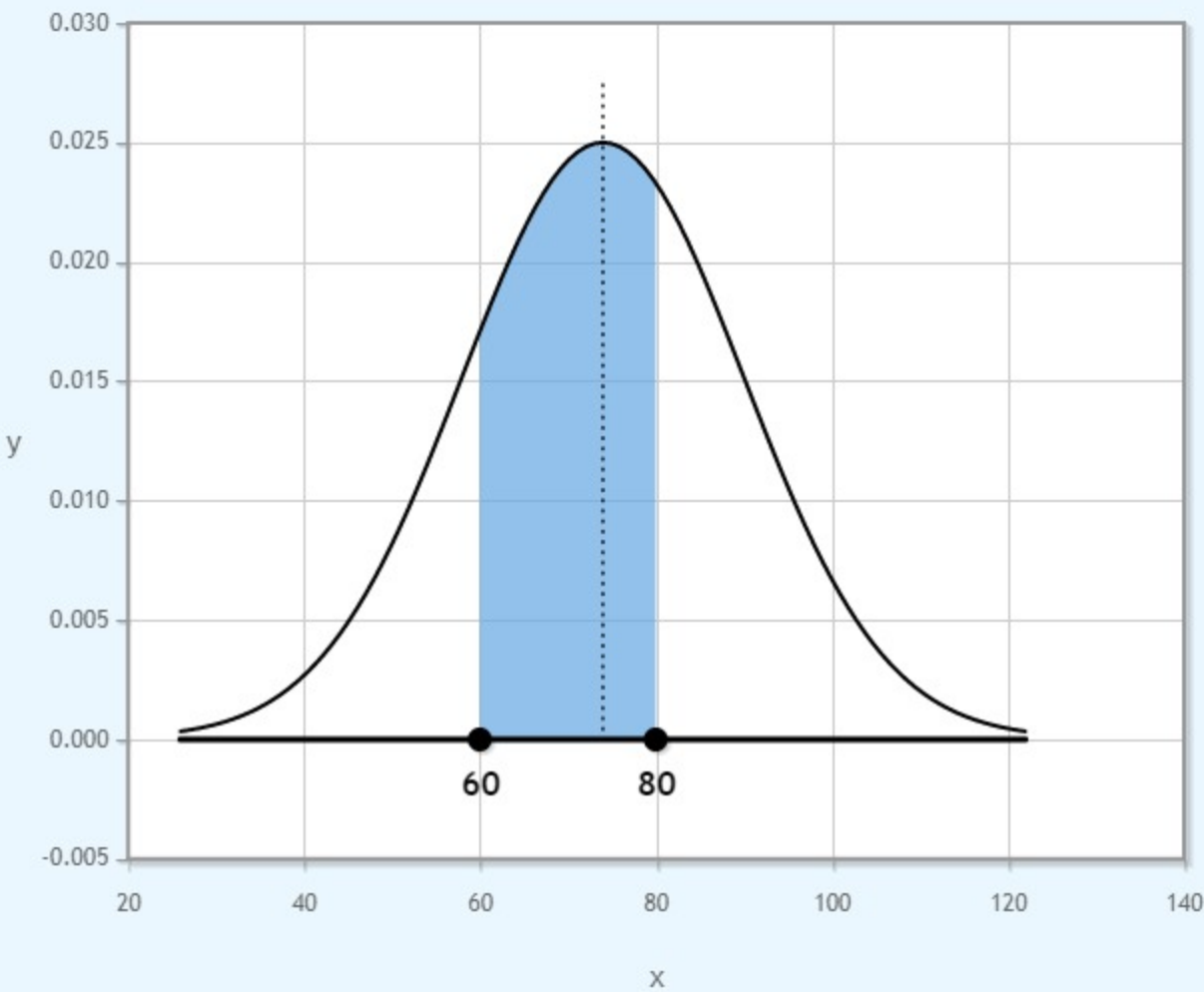
### solution

$$P(60 < X < 80) = 0.4586$$

### explanation

**Step 1: Sketch the curve.**

The probability that  $60 < X < 80$  is equal to the blue area under the curve.



**Step 2:**

Since  $\mu = 74$  and  $\sigma = 16$  we have:

$$P(60 < X < 80) = P(60 - 74 < X - \mu < 80 - 74) = P\left(\frac{60 - 74}{16} < \frac{X - \mu}{\sigma} < \frac{80 - 74}{16}\right)$$

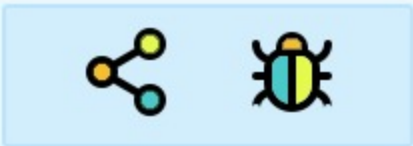
Since  $Z = \frac{x - \mu}{\sigma}$ ,  $\frac{60 - 74}{16} = -0.88$  and  $\frac{80 - 74}{16} = 0.38$  we have:

$$P(60 < X < 80) = P(-0.88 < Z < 0.38)$$

**Step 3:** Use the standard normal table to conclude that:

$$P(-0.88 < Z < 0.38) = 0.4586$$

**Note:** Visit the [Z - score calculator](#) for a step by step explanation on how to use the standard normal table.



## Normal Distribution Calculator

find the area under normal distribution curve

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If  $X$  is a normally distributed variable with mean  $\mu = 74$  and standard deviation  $\sigma = 16$  find one of the following probabilities:

☒  $P(60 < X < 80)$

☐  $P(X > \text{[ ]})$

☐  $P(X < \text{[ ]})$

☐ Hide steps

Compute

